

What is claimed is:

1. A light axis adjusting apparatus for a vehicle headlamp, comprising:

a light axis adjustor for adjusting a light axis of the headlamp of a vehicle;

an operating state detector for detecting an operating state of the vehicle;

an inclined state detector for detecting an inclined state of the vehicle relative to a road surface;

a change amount computing unit for computing an amount of change of the inclined state during a halt of the vehicle based on results of detection of said inclined state detector when said operating state detector detects a stop state of the vehicle; and

a control device for controlling said light axis adjustor based on the results of detection of said inclined state detector and results of computation of said change amount computing unit.

2. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said change amount computing unit includes:

an average value calculator for calculating average values by performing moving average processing of the results of detection of said inclined state detector;

a memory device for storing convergent average values obtained when said average values converge within a predetermined range; and

an inclined state change amount setting device for setting a difference between a maximum value and a minimum value of said convergent average values as said amount of change of the inclined state.

3. The light axis adjusting apparatus for a vehicle headlamp according to claim 2, wherein

said control device includes an updating device for updating the results of detection of said inclined state detector by adding said amount of change to, or subtracting said amount of change from, said results of detection when said amount of change is not less than a set amount of change which has been preset.

4. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said operating state detector includes an average value computing unit for computing an average value of the inclined state during driving based on the results of detection of said inclined state detector when said operating state detector detects a driving state of the vehicle, and

said control device controls said light axis adjustor based on the results of detection of said

inclined state detector and results of computation of said average value computing unit.

5. The light axis adjusting apparatus for a vehicle headlamp according to claim 4, wherein

said average value computing unit includes:

a collector for collecting a specified number or more of the results of detection of said inclined state detector during driving;

a standard deviation calculator for calculating a standard deviation based on results of collection; and

a setting device for setting an average value of said results of collection as an inclined state average value during driving when said standard deviation is not more than a set standard deviation which has been preset, and

said control device includes an updating device for updating the results of detection of said inclined state detector to said average value.

6. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, further comprising:

a standard deviation calculator for collecting a specified number or more of the results of detection of said inclined state detector and calculating a standard deviation when said operating state detector detects a stop state of the vehicle; and

an average value computing unit which, when said standard deviation has been judged to be not greater than a set standard deviation that has been preset, computes an average value of the results of detection for which said standard deviation has been judged to be not greater than said set standard deviation, and wherein

said control device includes an updating device which updates the results of detection of said inclined state detector to the average value computed by said average value computing unit when said standard deviation is not greater than said set standard deviation, and which adds said amount of change to, or subtracts said amount of change from, the results of detection of said inclined state detector to update said results of detection, when said standard deviation is greater than said set standard deviation.

7. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said inclined state detector includes:

an inclination sensor for detecting an inclination angle of the vehicle relative to the road surface; and

a filter device for removing high frequency components of data on the inclination angle detected by said inclination sensor.

8. The light axis adjusting apparatus for a vehicle headlamp according to claim 7, wherein

said inclination sensor is an ultrasonic sensor having a transmitter and a receiver.

9. The light axis adjusting apparatus for a vehicle headlamp according to claim 8, wherein

said transmitter and said receiver are a pair of ultrasonic sensors placed in a vehicle width direction, and a plurality of said pairs of ultrasonic sensors are disposed in a longitudinal direction of the vehicle.

10. The light axis adjusting apparatus for a vehicle headlamp according to claim 7, wherein

said inclined state detector is a laser sensor.

11. The light axis adjusting apparatus for a vehicle headlamp according to claim 1, wherein

said vehicle is a truck furnished with a cab and a frame where said cab is disposed, and

said inclined state detector is placed on said cab or a vehicle front portion of said frame.

12. A light axis adjusting apparatus for a vehicle headlamp, comprising:

light axis adjusting means for adjusting a light axis of the headlamp of a vehicle;

operating state detecting means for detecting an operating state of the vehicle;

inclined state detecting means for detecting an inclined state of the vehicle relative to a road surface;

change amount computing means for computing an amount of change of the inclined state during a halt of the vehicle based on results of detection of said inclined state detecting means when said operating state detecting means detects a stop state of the vehicle; and

control means for controlling said light axis adjusting means based on the results of detection of said inclined state detecting means and results of computation of said change amount computing means.